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**Quiz#3 (spring 2020)**

**Question one:** Two applications (*download manager, facebook*) are running on a station. They are connected through two TCP sessions to two distant stations (Britain, USA). Each TCP session is given an ISN (2000, 9000). Two messages of lengths (16.5 KB, 28.75 KB) are sent through the two TCP sessions.

***Hence perform the following activities:***

- Draw a schematic diagram for the two TCP sessions.
- Show how the message of each session is segmented.
- If the scheduler take three frames from each session, show the flow of frames on the wire

**N.B:** Assume MSS is equal to 4 KB

**Question two:** An application on station A was activated to send a 13 KB to station B. The transmission time  $t_t$  and the propagation time  $t_p$  are equal to  $2 \mu s$  and  $5 \mu s$  respectively. For normal operation, assume that:

- Maximum segment size is 512 B, window size is 6.
- Station B delays acknowledgments until it receives four consecutive segments.
- Use a delayed ack timer of  $25 \mu s$ .

***Hence perform the following activities:***

- Calculate the time needed to transfer the file? Validate your answer.